

# W5YI

## Nation's Oldest Ham Radio Newsletter REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable. May be reproduced providing credit is given to The W5YI Report.

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Vol. 15, Issue #23

\$1.50

PUBLISHED TWICE A MONTH

December 1, 1993

### Army/Navy Pigskin Pursued by Graphic Packet

Once again, the Naval Academy Amateur Radio Club, W3ADO, and one hundred midshipmen members of the 13th Company will combine high technology communications and physical stamina for the annual running of the Army/Navy game ball from Annapolis to the football stadium. The running of the game ball from the Naval Academy's Friday afternoon pep rally to the stadium has been a long standing tradition at Navy.

Tracking the progress of the football to the stadium using ham radio and satellite positioning technology is the pet project of **Robert Bruninga, WB4APR**, of Glen Burnie, Maryland. He is also the director of the Academy's satellite earth station. Bob uses 2-meter and HF packet radio to link back the position of the football to the Academy - and anybody else who wishes to follow its progress on a computerized map. The undertaking is really an offshoot of the Naval Academy's AX.25 APRS Network which Bob developed to keep track of its fleet of boats operating up and down the east coast. A graphic display on a PC shows the position and status of academy vessels located between Canada and Florida in real time - certainly far superior to the old wall chart and map pin system.

The first of fifty pairs of midshipmen runners leave at noon on Friday, December 3rd. Just before game time the following day - and fifty football "hand-offs" later - they arrive at the stadium. Usually the game is held at Veterans Stadium in

Philadelphia; 128 miles away. But every fourth year the game is held at the New Jersey "Meadowlands" - a distance of some 250 miles from Annapolis.

Since the distance is so much further, the runners cheat a little and use bicycles in the middle of the trip through Delaware and on up to New Jersey. Each team is responsible for about a five mile stretch. They will be closely followed by three chase vehicles that also shuttle runners to each of the 50 waypoints along the way. Each vehicle contains miniaturized *Global Positioning System* (GPS) navigation equipment and a two meter packet station.

The government's *Global Positioning System* can be accessed by the public at no cost. There are about 20 GPS satellites in orbit and three or more of these satellites are in view of any point on earth at any given time. A GPS receiver merely listens to multiple satellites and by computing the timing difference of their signals, determines a three-dimensional position fix every second that is accurate to within 100 yards. The cost of GPS cards have nose-dived drastically in recent years. Now available for about \$400 - they used to cost \$1,500! Bob believes the cost will continue to drop to perhaps \$100. When that happens, location positioning will be available as a commonplace consumer appliance.

Using a TNC and a 2-meter transceiver, the serial ASCII output of the GPS receiver is sent

back to Annapolis to be posted to a computerized map. The idea is for students to know exactly where the football is located all throughout the night. The map displays are distributed to various computers around campus through the Academy's local area network.

The heart of the whole operation is the packet software which was developed by Bruninga for IBM PCs and compatibles. It allows packeteers to track real time events. Ham operators participating in various public service events are often primarily concerned about where participants and objects are located - and where they are going. Instead of seeing text on the screen, users see graphics - in this case, a map display. The map can be anything from the whole world - or you can zoom right in on a small neighborhood. You simply select your own scale. A computer screen could cover 2000 miles - or a half a mile.

The map between Annapolis and New Jersey shows the main landmarks, rivers, state lines, all 4-lane roads - and such. Bob's software even provides the tools so that users can add additional landmarks to their map display. "The beauty of the software," Bob says, "is that anybody can draw a map" He calls the software "APRS" which stands for *Automatic Packet Reporting System*.

The APRS software is distributed as shareware and may be duplicated without restriction for amateur use. You don't need a GPS receiver to use the software. Any station on a packet network can manually update a position by simply moving the cursor. A registered APRS program copy is available for \$19 from WB4APR (115 Old Farm Court, Glen Burnie, MD 21060.) Registered users also get a password which unlocks additional features. For example, you can triangulate the location of interfering signals. (See page 80 of the Dec. 1993 *CQ Magazine* for complete details of how APRS works.)

Last year the GPS receiver was placed in a Navy football helmet which, along with the football, was relayed from runner to runner from Annapolis to Philadelphia. Initially Bob, WB4APR, wanted to put the GPS equipment inside the football itself, but decided against it since he feared the equipment would get bounced around, be prone to fumbles ...and the antenna might not always be oriented correctly. This year Bob decided to simply have the GPS and ham radio equipment in the chase vehicles driven by radioamateurs.

Last year the position reports coming from the runners were transmitted through local voice repeaters which were linked back to Annapolis. This year to avoid all the difficulties of explaining to the voice users why packets are on their repeaters, Bob decided to use digipeaters. So far, however, he has been unable

to line up all of the necessary digipeaters along the route. All it takes is for amateurs to leave their packet station on overnight so the chase vehicles can digipeat through them. (Readers: Please leave your packet station on the night of Dec. 3rd if you live between Maryland and New Jersey. The Naval Academy needs to use it! It would help if you could get this message out on your local 2-meter bulletin network.)

The lead vehicle will also transmit the positions on HF ham radio and a military satellite link will receive and downlink these reports back to Annapolis. The packets will then be retransmitted out on the amateur tracking 40 and 30 meter network at 7.085 and 10.151 MHz, LSB, for packeteers world-wide to follow the football. (By the way, 10.150 MHz is not really outside the ham band since on lower sideband, the RF is 1.7 kHz below center frequency.)

### HAMSHOW CONVENTIONS PUT ON "HOLD"

The Amateur Radio Industry was shocked to learn in early November that the much touted HamShows scheduled for January 1994 in San Diego and Santa Clara, CA, have been cancelled due to the poor health of HamShows President **Mike Forsyth, N7KQE**, of Shawnee, Kansas.

While HamShows insiders are adamant about respecting Mike's privacy, we have been assured that his condition is not life threatening. A letter to industry members is scheduled to be in the mail by Nov. 19. A copy of that letter is reprinted here.

"We regret to inform you that due to personal health reasons, the planned California HamShows in January 1994 have been cancelled.

"HamShows had planned to produce five major conventions in 1994, beginning with the two California conventions in San Diego and Santa Clara. Unfortunately, I am physically unable to dedicate the effort necessary to professionally produce those shows, and they must be cancelled.

"We regret any inconvenience this may have caused. HamShows will continue to plan future conventions, and will be contacting you for input on how we can improve our services. Thank you for all your past support and interest. Once my health has improved, we hope to work with you in creating a series of professional conventions.

"Sincerely, /s/ Mike Forsyth, President."

We have been informed that along with the letter, checks refunding advance booth payments are also scheduled to go out, and that all other outstanding financial obligations will be met. Forsyth appears to be trying to maintain a good level of professionalism even in the face of personal problems.

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HamShows got its start in 1992 when Forsyth left his position as Regional Sales Manager, Amateur Radio Products, for Kenwood U.S.A. Corporation, a job he held for two years. Enlisting the financial support of CQ Communications, Mike plunged head long into the project of running a string of five professionally produced and managed Amateur Radio conventions in five major population centers in the U.S. which were not regularly served by other large scale club and ARRL sponsored events: The upper Eastern seaboard (Valley Forge, PA and Springfield, MA), the Chicago area, and Northern and Southern California.

The first show produced by HamShows took place in August 1993 in Valley Forge, PA, and although it was plagued by some local "nay saying" among certain ham clubs, by most measures the event was a credible first show, drawing about 3,000 paid attendees. The weak local support was most obvious in the sparse flea market, but despite a few valid complaints about booth placement by some vendors, the general feeling about the show was that it was a good start, and even at its launch HamShows had already exceeded the quality of many long-established shows. Unfortunately, some industry members used unrealistic yardsticks to measure the show's performance: Dayton, Dallas and Miami.

Prominent industry spokesmen have voiced continued enthusiasm for the concept of a small number of professionally run ham conventions in areas underserved by other events. CQ Publisher Dick Ross, K2MGA, says "The human and economic toll on a small company as a result of attending so many as twenty-two weekend events each year is so enormous as to be unconscionable. And yet we want to be able to meet as many of our customers as possible. The concept of a few larger professionally-run shows in high-population areas is extremely appealing to us, which is why we've supported HamShows."

Time will tell whether Forsyth will be able to pick up where he left off, or if the need will have to be met by others.

## RETRANSMISSION OF EMERGENCY BROADCAST SERVICE WARNINGS OVER AMATEUR RADIO

On November 10th, the FCC denied a *Petition for Rulemaking* seeking permission to allow amateur stations to retransmit emergency or warning communications originated by government or broadcast service stations.

**Ray J. Vaughan, KD4BBM** of Miami Lakes, Florida, submitted a very professionally completed petition requesting that Section §97.113(e) be amended to permit "...the automatic or manual transmission of emergency or warning communications originated by

the United States, state or local governments or Broadcast stations and the operational testing of such emergency communication systems on amateur service frequencies above 30 MHz." Vaughan asked that these retransmissions be for the exclusive use of amateur operators and "...emergency retransmissions and tests of emergency communications systems may not be on a regular basis, but only occasionally, as an incident of normal amateur radio communications."

Vaughan believes that "From a practical standpoint, this change would permit Amateurs to connect their repeaters and packet stations above 30 MHz to the same type of equipment that will be used for the next generation of EBS (*Emergency Broadcast System*) or to today's equipment. In the event of an emergency or a test of the system, retransmission of government and broadcast stations will be permitted. All amateurs listening to the frequency would hear the message as it is being transmitted to the general public. All other retransmissions of broadcast stations would be prohibited." Vaughan wants this authority to be limited to spectrum above 30 MHz "...to limit possible conflicts with international treaties."

Robert H. McNamara, FCC Special Services Chief, reminded Vaughan that "...when normal communications systems are overloaded, damaged or disrupted because a disaster has occurred, or is likely to occur ...an amateur station may make transmissions necessary to meet essential communications needs and facilitate relief actions. The rules also state that when a disaster disrupts normal communication systems in a particular area, the FCC Engineer-In-Charge in the area concerned may declare a temporary state of communication emergency and set forth any special conditions and special rules to be observed by stations during the communication emergency." (See §97.401-407)

Further, amateur stations are authorized to exchange emergency messages:

- (1.) with a station in other FCC regulated services, (§97.111(a)(2);
- (2.) U.S. Government stations necessary to providing communications in RACES, the Radio Amateur Civil Emergency Service (§97.111(a)(3) and;
- (3.) a station in a service not regulated by the FCC but approved by the FCC to communicate with amateur stations. (§97.111(a)(4)

McNamara said the issue of retransmission of government broadcasts was also considered in 1989. "There, we declined to authorize such retransmissions because these transmissions can be widely received using very affordable receivers. This is still true today, and therefore, we can see no reason to allow the use of amateur service frequencies for additional retransmissions."

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## A LITTLE HISTORY ON AMATEUR RADIO CALLSIGNS

Their can be no doubt that we get more questions and comments on call signs than on any other Amateur Radio subject. Specific sequences of call sign letters are of monumental importance to ham operators since it is their name on the amateur airwaves. On the ham bands, radioamateurs are reduced to a nick name and a call sign. Their real name is of secondary importance.

The suffix letters are almost always worked into a phrase symbolic of its owner. Call signs denote status among peers - since they are issued in order and the shorter letter combinations are issued to higher class operators. You can usually tell how long a person has been licensed and his class by the call sign.

Your author is no exception. "W5YI" started out as W1NTK nearly 40 years ago - and after many other call signs (in the early days you had to change your call sign if you moved from one call sign area to another) became W5YI when the FCC in the 1970's allowed Extra Class amateurs to select any available call sign.

My call sign originally belonged to the Rice Institute (now Rice University) Engineering Department in Houston, Texas. It was known as "5YI" back then since the ITU had yet to designate international prefixes. I treasure a 1922 QSL card from "5YI" to "5KM" (now hanging on my office wall) confirming a 1922 spark contact between Gus Howard, W5KM and the Rice Institute engineering department. Gus, now 89, was only 18 years old at the time! He later became an engineer, an attorney ...and eventually the Engineer-in-Charge of the Dallas FCC district. I had the penny post card QSL laminated because it had turned brittle and yellow with age.

In the beginning, all two letter ham call signs with the first letter "Y" were assigned to institutions of higher learning. And many still exist even today. The Rice University Chemistry Department also had W5YG which they still retain. Other two letter "5Y" calls still assigned to colleges are W5YJ (Oklahoma State Univ. although the call was initially assigned to Oklahoma A&M its former name), W5YM (Univ. of Arkansas), W5YW (Louisiana State Univ.), W5YD (Miss. State Univ.), W5YE (Univ. of Miss.) W5YF used to be Southern Methodist University in Dallas, and W5YU: Tulane Univ. in New Orleans. Both call signs have fallen by the wayside. Sadly, neither was renewed.

There are dozens of other 2-letter suffix "Y" calls assigned to colleges in all call districts - they extend from W1YA (Univ. of Maine) to WØYQ (at the Univ. of Colorado.) Some two letter "Y" callsigns are now ham clubs which do not indicate their college origin. (Examples are W3YA Nittany ARC, (originally Penn State Univ.), W9YH, Synton ARC (Univ. of Illinois), W9YT,

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Badger ARS (Univ. of Wisconsin), W7YH Rho Epsilon ARC (Washington State University), W7YK Benson ARS (Benson Polytechnic, Portland, OR), W7YN Nevada ARS (Univ. of Nevada/Reno.), WØYC Campus Radio Club (Iowa State Univ.) ...among others.

CW buffs like short calls with letters of few dots and dashes since they are easier to send and receive. Few non-amateurs understand the significance of station call signs to a ham operator.

Up until the 1960's, all call signs were assigned manually. It was not until the 1970's that computers were used at all in the Amateur Service - and even then a call sign requiring special call sign combinations had to be hand issued - a so-called "094 transaction." Deserving amateurs and groups were usually able to get a preferred call by contacting the FCC in Washington. In 1978 an FCC computer spit out call sign address labels which had to be affixed to a ham ticket. It wasn't until 1981 that a computer actually assigned the call sign and printed it out on the license.

The FCC discontinued their special call sign selection system for Extra Class amateurs and went to a new system in the mid 1970's.

## THE NEW GROUP CALL SIGN SYSTEM

The official reason was a lack of manpower and financial resources to handle the paperwork. But there was more to it than that. A Gettysburg FCC official was convicted and sent to jail for what amounted to selling amateur call signs. It was a major FCC scandal! The new *Call Sign Assignment System* put an end to all previous call sign policies and all call signs would now be issued in strict alphabetical sequence, period. No exceptions. Renewal of existing secondary calls and special event call signs were also discontinued. A provision was made (but never implemented) for special "Group X" 2-by-3 call signs for RACES (WC prefix), club (WK), military recreation (WM), and repeater stations (WR) and for temporary licensees (WT).

Four different assortments of call signs (designated Group A, B, C and D) were selected for Extra Class, Advanced, Technician/General and Novice class amateurs. The plan was to allocate shorter call sign combinations to the higher classes since it was believed these were more desirable. The 1978 call sign system has probably done more to encourage upgrading than the outlook of additional frequency and power privileges.

Under the new system, no one had to change their existing call sign, but could if they wanted to by changing a mailing (not the transmitting) address. New amateurs, however, would only be issued call signs appropriate for their class. The following is a

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run down of the format and sequence order of all U.S. amateur radio call signs issued by the FCC.

## CALL SIGN ASSIGNMENT ORDER

[# = number, c = sequential letters]

### Continental United States

#### GROUP A - Extra Class

K#cc, N#cc, W#cc, AA#c-AK#c, KA#c-KZ#c, NA#c-NZ#c, WA#c-WZ#c and AA#cc-AK#cc. Except prefixes beginning with AH, KH, KL, NH, NL, WH, WL, WP. (Then Group B)

#### GROUP B - Advanced

KB#c-KZ#cc, NA#cc-NZ#cc, WA#cc-WZ#cc Except prefixes beginning with KH, KL, KP, NH, NP, WH, WL, WP. (Then Group C)

#### GROUP C - Technician & General Class

N#ccc (Then Group D)

#### GROUP D - Novice

KA#ccc-KZ#ccc, WA#ccc-WZ#ccc Except KH, KP, WC, WH, WK, WL, WM, WP, WR, WT

### Outside of 48 Contiguous States

#### Pacific Area

Group A: AH#c, KH#c, NH#c, WH#c (Group B)

Group B: AH#cc (Group C)

Group C: KH#cc, NH#cc, WH#cc (Group D)

Group D: KH#ccc, WH#ccc

#### Alaska Area

Group A: AL7c, KL7c, NL7c, WL7c (Group B)

Group B: AL7cc (Group C)

Group C: KL7cc, NL7cc, WL7cc (Group D)

Group D: KL7ccc, WL7ccc

#### Atlantic Area (Caribbean)

Group A: KP#c, NP#c, WP#c (Group B)

Group B: KP#c (Group C)

Group C: NP#cc, WP#cc (Group D)

Group D: KP#ccc, WP#ccc

## COMMENTS: TEMPORARY OPERATING AUTHORITY

As we mentioned in our last issue, in response to a *Petition for Rule Making* from the Western Carolina Amateur Radio Society/VEC, Inc. (WCARS), the FCC has issued a *Notice of Proposed Rule Making* which will allow a newcomer to get on the amateur air waves right after the examinee passes the required exams.

Basically, the newcomer would identify their station by using the prefix WZ plus the VEC region numeral (1 through 13) of their mailing address - plus their initials. Thus John Q. Ham from Texas would be WZ5JQH for a maximum of six months while awaiting receipt of his/her operators license. The comment period closes on this proposal January 10, 1994.

The comments are just now starting to trickle in to the FCC in Washington, D.C. Here are a few excerpts from Comments filed by amateurs in PR 93-267.

"To my knowledge, the Commission has not researched the number of inquiries from individuals checking on the status of their applications who currently hold FCC issued callsigns, how this proposal

deters individuals with pending applications for upgrades from continuing to contact the FCC and how a temporary callsign would, in any way, deter an individual with a pending application from contacting the FCC." - **Jason Lansky, NF6E**, San Diego CA

"A radio could be bought by anyone, and assign himself a call ...and he is on the air, with a fake address and name every 12 weeks, i.e. truck drivers, salesmen and cross-country travelers. ...This is a lifetime privilege, waiting 10 or 12 weeks for a license is not cause to amend Part 97." - **James F. Jarvis, WD4EKA**, ARRL SEC, VE, Bristol TN

"The station identification scheme (WZ# and initials) lends itself to abuse by unlicensed operators. If the proposed method of providing test information to the FCC via a computer modem becomes effective near the first of 1994, as expected, and if the turn-around time will be three days, as estimated, the need for temporary operating privileges is eliminated." - **Robert L. Crawford, WO6I**, La Mesa CA

"In the City of Houston, we have problems of unauthorized amateur radio transmissions. ...We had one person transmitting via a local 2-meter repeater with a fake callsign and claiming 'just got the no-code tech license in the mail today.' We are able to determine that he did not have the license by the fake callsign he transmitted on the air. We told him to get an amateur radio license and get off the repeater. ...I am afraid that any cost savings by reduction of telephone contacts will be offset by increased cost of enforcing the Part 97 FCC Rules on the part of Commission staff and taxpayers. This proposal will cause the rate of unauthorized amateur radio transmissions to raise since we would not be able to determine which callsign is legitimate and who holds such callsign." - **Richard C. Culver, KB5USL**, VE, Houston TX

"The idea of issuing temporary callsigns which have not been assigned by the FCC and recorded by them...will lead the structure known as amateur radio that your agency has so carefully developed over the years into a state of utter confusion. ...After the warm rush and personal thrill that accompanies the words 'You passed your test,' the new ham has an opportunity to plan a station, obtain equipment and really focus on proper operating techniques. The five to eight weeks pass quickly enough not to be burdensome." - **George E. Foss III, N1JHY/AE**, Franconia NH

"I understand the FCC is contemplating on installing a more efficient computer system that, when fully implemented, will considerably shorten the waiting period for issuance of a person's first amateur license. Since this new system is projected to be installed in the near future I feel that implementation of RM 8288 is unnecessary and once implemented would be impossible to retract." - **John J. Roessler, KB6WB**, El Cajon CA

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## AMATEUR RADIO CALL SIGNS

...issued as of the first of November 1993:

Radio District	Gp. "A" Extra	Gp. "B" Advan.	Gp. "C" Tech/Gen	Gp. "D" Novice
Ø (*)	AAØPJ	KGØJP	NØZFP	KBØLMN
1 (*)	AA1HU	KD1SC	N1QOL	KB1BEI
2 (*)	AA2QI	KF2SM	N2XAA	KB2QPY
3 (*)	AA3GK	KE3KS	N3QVP	KB3AZG
4 (*)	AD4MR	KR4HF	(***)	KE4HJE
5 (*)	AB5QJ	KJ5SC	(***)	KC5DZT
6 (*)	AB6YI	KN6US	(***)	KE6DDA
7 (*)	AA7ZR	KI7TD	(***)	KB7ZJM
8 (*)	AA8NC	KG8EZ	(***)	KB8QHH
9 (*)	AA9JF	KF9SE	N9VKZ	KB9IVZ
N.Mariana Is.	AHØV	AHØAO	KHØCF	WHØAAY
Guam	NH2X	AH2CT	KH2HN	WH2ANH
Johnston Is.	AH3D	AH3AD	KH3AG	WH3AAG
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii	(**)	AH6NE	WH6QJ	WH6CQZ
Kure Is.			KH7AA	
Amer. Samoa	AH8H	AH8AF	KH8BA	WH8ABB
Wake W.Peale	AH9C	AH9AD	KH9AE	WH9AAI
Alaska	(**)	AL7PJ	WL7NY	WL7CHI
Virgin Is.	WP2C	KP2CC	NP2GT	WP2AHU
Puerto Rico	(**)	KP4VW	(***)	WP4MLM

**CALL SIGN WATCH:** \* = All 2-by-1 "W" prefixed call signs have been assigned in all radio districts. Group "A" 2-by-2 format call signs from the AA-AK block are next assigned to Extra Class amateurs.

\*\* = All Group A (2-by-1) format call signs have been assigned in Hawaii, Alaska and Puerto Rico. Group "B" (2-by-2) format call signs are assigned to Extra Class when Group "A" are depleted.

\*\*\* = Group "C" (1-by-3) call signs have now run out in the 4th, 5th, 6th, 7th, 8th and Puerto Rico call districts. The Ø, 2nd and 9th call districts will also shortly be out of 1-by-3 "N" call signs. According to the rules (adopted by the Commission Feb. 8, 1978, Docket No. 21135), Technician/General class amateurs are next assigned Group "D" (2-by-3 format) call signs when all Group "C" have been assigned.

Upgrading Novices holding a 2-by-3 format call sign in the 4th, 5th, 6th, 7th, 8th and Puerto Rico call areas will no longer be able to request a Group "C" call and will be automatically assigned another more recent 2-by-3 format call sign if they do! The FCC will not be going back and routinely reassigning unused "K" and "W" 1-by-3 format call signs. Due to recent legislation, it is anticipated that - at some point - the FCC will be issuing special "vanity" self-selected call sign letters. There will be a fee attached to these special call signs.

[Source: FCC, Gettysburg, Pennsylvania]

## SEPTEMBER VE PROGRAM STATISTICS

September No. VEC's	1991	1992	1993
<b>Testing Sessions</b>	<b>628</b>	<b>656</b>	<b>905</b>
VEC	1991	1992	1993
ARRL	45.9%	50.6%	49.9%
W5YI	33.6	35.8	37.3%
CAVEC	3.2	2.9	2.9
WCARS	1.6	1.8	1.8
GtLakes	4.1	2.1	1.5
SunnyV	1.1	1.4	0.9
Others (12)	10.5	5.4	5.7
<b>Year-to-Date Sessions</b>	<b>5724</b>	<b>7365</b>	<b>8116</b>
<b>Elements Administ.</b>	<b>12673</b>	<b>11625</b>	<b>14085</b>
VEC	1991	1992	1993
ARRL	53.0%	53.3%	51.4%
W5YI	26.3	28.1	31.4
WCARS	2.3	4.5	4.0
GtLakes	3.6	3.0	2.8
CAVEC	1.9	2.3	2.3
SunnyV	2.3	2.5	1.7
Others (12)	10.6	6.3	6.4
<b>Year-to-Date Elements</b>	<b>123878</b>	<b>147156</b>	<b>147206</b>
<b>Applicants Tested</b>	<b>7583</b>	<b>7010</b>	<b>8214</b>
VEC	1991	1992	1993
ARRL	54.8%	52.5%	51.2%
W5YI	27.0	29.3	31.6
WCARS	2.3	4.3	4.4
GtLakes	2.8	3.3	2.6
CAVEC	2.1	2.1	2.3
SunnyV	2.2	2.2	1.5
Others (12)	8.8	6.3	6.4
<b>Year-to-Date Tested</b>	<b>74494</b>	<b>88198</b>	<b>86434</b>
<b>September</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>
Pass Rate - All	66.9%	65.2%	64.7%
Applicants/Session	12.1	10.7	9.1
Elements/Applicant	1.7	1.7	1.7
Sessions Per VEC	34.9	36.4	50.3
<b>Administrative Errors by VE's/VEC's</b>			
<b>September</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>
Defect. Applications	1.1%	0.4%	0.2%
Late Filed Sessions	3.2%	0.3%	2.4%
Defective Reports	0.8%	0.2%	0.0%

**Note:** The two largest VEC's, (ARRL/W5YI) accounted for 87.2% of all September 1993 test sessions, 82.8% of the exam elements and 82.8% of the applicants.

[Source: Personal Radio Branch/FCC; Washington, D.C.]

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- We have gotten several inquiries from amateurs wanting to know more about how the **Chris Boyer, KC6UQG**, case ended up. (See last issue, page 10.) Boyer is the San Diego, CA, amateur who **accessed a Sheriff's Dept. radiob frequency to summon medical help** for an injured and bleeding friend who was hurt in a mountain biking accident. Reportedly, Boyer first tried to get help by trying amateur, business band and cellular radio to no avail.

He later was called "on-the-carpet" by the Sheriff and FCC for using public safety frequencies he was not licensed to use. The story was highlighted in a San Diego *Union-Tribune* newspaper article written by a friend of Boyer. Although the article indicated that Boyer's hand-held transceiver was confiscated, we understand he actually agreed to give up the radio.

We again called the San Diego FCC office this past week to get updated information and were told that the official word is "no comment" because no action has yet been taken on the case ...although the Commission indeed says it plans to do so.

Many amateurs are confused since Section §97.403 clearly allows amateurs to use "...any means of radiocommunication at its disposal to provide essential communication needs in connection with the immediate safety of human life and immediate protection of property when normal communication systems are not available."

Complicating the issue is the fact that Boyer modified his radio to transmit out of the ham bands. Furthermore, it is confusing as to why he was able to summon help on public safety channels when he could not on other frequencies.

The San Diego office again agreed to FAX us a copy of the public record once they have taken action. We should have further information in time for our next issue.

- The members of the **North Texas Balloon Project** in Fort Worth, Texas, successfully completed their fifth flight of a balloon carrying Amateur Radio on Sunday, 14 November 1993.

Launched at 2012 UTC from an airport 30 miles south of Fort Worth, the balloon and its equipment soared to a

height of over 101,000 feet and traveled northeast 115 nautical miles -- the furthest distance yet for an NTBP flight. It touched down just over two hours later in a very muddy field near the small town of Petty, Texas, between the cities of Bonham and Paris, just 20 miles from the Texas-Oklahoma border.

This mission marked the first time an NTBP flight carried an ATV transmitter. Pumping out one watt in the 70-cm band, it provided full-color video to hams all over Texas. It was picked up as far away as Salina, Kansas. Videotaped footage clearly shows the earth's curvature at maximum altitude, followed by violent spinning after burst.

The balloon package, shaped like a Mercury space capsule, contained a terminal node controller (TNC) to provide packet data from a Global Positioning Satellite (GPS) receiver also flying aboard. Hams for hundreds of miles collected real-time telemetry on 2 meters: latitude, longitude, altitude, rate of climb, and ground-track velocity. At least one digipeat was made through the balloon.

A 70-cm uplink allowed hams to use the balloon as a temporary satellite station, listening to contacts on 2 meters. One heavy user was W5AC, the Texas A & M University Amateur Radio Club.

This flight was delayed one day because of bad weather. "If we couldn't launch on this Sunday, we may have had to scrub it for the rest of the year," said **Doug Howard, KG5OA**, project manager. Nevertheless, over a dozen direction-finding hams homed in on the balloon's signal, as two more teams directed traffic from private aircraft.

The balloon landed only 20 miles away from its predicted landing point. Remembering the parachutist dropping in uninvited on a boxing match in Las Vegas recently, a common joke on the Fort Worth repeaters considered the possibility of the package dropping in through the hole in the roof of Texas Stadium in Irving, since the Dallas Cowboys were hosting a football game with the Phoenix Cardinals during the flight!

- And speaking of balloon flights, the next attempt of the **round-the-world "Earthwinds" balloon flight** is now scheduled for Wednesday, January 5th.

- **"Ham Radio and More!"**, a local Phoenix call-in talk show for the past 2½ years is going national. Beginning Sunday Nov. 28 at 6:00 p.m. EST, host **Len Winkler, KB7LPW**, will broadcast the show coast-to-coast over the *Talk America Network*. The show covers all aspects of Amateur Radio and features weekly guests, FCC news, give-a-ways, listener call ins, DX news ...and more! **"Ham Radio and More!"** originates from the studios of KFNN in Phoenix.

*Talk America* already has over 80 (AM radio) affiliates coast-to-coast. For further information on how your local broadcast station can carry the show, call the *Talk American Network* at (508) 460-0588 or Winkler at (602) 861-0303. The show can also be picked up via satellite on Satcom C-5, Transponder 19, 6.0 audio and Galaxy 2, Transponder 3, Channel 55.4.

- **Third party message privileges with Cuba - which previously was authorized - is no longer approved.** According to **Rafael Estevez, WA4ZZG** of Hialeah, FL, when Hurricane Andrew demolished much of the public communications capability between Cuba and Florida, the Cubans resorted heavily to Amateur Radio. The pro-Castro *Cuban Amateur Radio Federation* has taken a renewed position that Cuban amateurs should not communicate with the "enemy" - Florida amateurs of Cuban descent. Rafael says that Cuban amateurs are getting their licenses suspended from three months to a year for passing such innocent non-political health and welfare traffic as "...appealing for aspirin and insulin."

CO2QQ advised Rafael on-the-air last week that the United States and Cuba no longer have a third party agreement and Cuba was indeed missing from the third-party traffic list recently circulated by the FCC.

It is now very difficult to get any type of public communications out of Cuba since Hurricane Andrew severely damaged AT&T's over-the-horizon communications system. Furthermore, the Cuban government has imposed new restrictions limiting the number of telephone calls out of Cuba to 300 ten minute calls per day. As recent as last year, the number of telephone calls exceeded 5,000 per day.

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## COMMERCIAL RADIOTELEGRAPH EXAMINATIONS

### Delay in Issuing Element 5 and 6 Question Pools

Many Extra Class radioamateurs are especially interested in qualifying for the **2nd Class Radiotelegraph Operators Certificate** since they receive examination credit for the telegraphy portion of the exam. All COLEM's (Commercial Operator License Examination Manager's) were initially told that the FCC would release the Element 5 and 6 question pool during November. The requirements for the various Commercial Radiotelegraph Operator licenses are as follows:

License	Code Exam	Written Exam
First Class (*)	20CG, 25PL	Elements 1, 5 & 6
Second Class	16CG, 20PL	Elements 1, 5 & 6
Third Class	16CG, 20PL	Elements 1 & 5

**Telegraphy Element 1**=16CG, 2=20PL, 3=20CG, 4=25PL (CG=Code Groups, PL=Plain Language text. Number=words-per-minute.)

**Theory Element 1**=Basic Radio Law (Exam 24 questions/18 passes/pool 170 questions)

**Theory Element 5**=Radiotelegraph Operating Practice (Exam 50 questions/38 passes/pool 250 questions.)

**Theory Element 6**=Advanced Radiotelegraph (Exam 100 questions/75 passes/pool 500 questions)

\*= *Must be at least 21 years old with one year maritime telegraphy experience.*

It now appears that the Element 5 and 6 Question pools that are needed for the 2nd Class Radiotelegraph Operator Certificate will not be ready during November as originally scheduled by the FCC. (The Element 1 questions were released on Sept. 2nd.)

Last week, George Dillon, Chief of the FCC's Maritime and Aviation Branch (Washington, DC) told us that he is having difficulty coming up with the required number of questions for these pools. Dillon is in charge of the FCC's Commercial Radio Operator question pools. In an attempt to assist the FCC with the completion of these pools, we have contacted both shipboard radio unions and asked for their assistance. We spoke to **Rae Echols (W7FFF)** at the American Radio Association in Scottsdale, Arizona, and **Don Dishinger (W6RLT)** at the Radio-Electronics Officers Union at Panama City Beach, Florida. Both promised to assist.

Do any of our readers have copies of old commercial radiotelegraphy study material (almost all is now out of print) that could assist us in making up exam questions? If so, we sure would like to borrow the material for a while? Let us know. Also, we are interested in receiving questions with four possible

multiple choice answers (one correct) for Element 5 and 6. The syllabus for Element 5 shows the questions should be on: "...operating procedures and practices generally followed or required in communicating by means of radiotelegraph primarily other than in the maritime mobile services..." Element 6 questions concern "...technical, legal and other matters applicable to the operation of all classes of radiotelegraph stations including the maritime mobile services... (including) radio navigational aids, message traffic routing and accounting, etc."

The Rules (Section §13.215) require that "Each question pool must contain at least 5 times the number of questions required for a single examination.) A total of 750 questions for the combined Element 5 and 6 question pools **is a lot of questions**. Can any of you help?

## AMATEUR & COMMERCIAL RADIO OPERATOR TESTING - AND - "CONFLICTS OF INTEREST"

*...an editorial perspective*

The FCC's "Conflict of Interest" commercial radio operator testing rules are completely different from those of the Amateur Service. Section §97.515(b) of the Part 97 Amateur Service Rules basically says that there is a Conflict of Interest when examiners are involved in license preparation publications and/or ham equipment. ("Involved" means the manufacture/preparation, distribution of these products or having a significant interest in a firm that does.) While the wife of an instructor/examiner (or anyone else) may pass out the study material to a ham training class - the instructor may not and still be one of the three required VE's. According to the FCC, the word "distribution" is meant in its broadest sense and includes "selling, passing out or giving away" under both profit and non-profit circumstances. Under the rules, it is even illegal for a VE to present a free copy of the *Part 97 Rules* to an applicant! Someone else has to do the "...distribution." (It is an overly broad regulation in our opinion!)

No time limit is mentioned in §97.515(b), but it stands to reason that if a person no longer "distributes" license preparation material, that he/she is eligible to be a volunteer examiner.

Of interest is the conflict of interest rules that exists in the Commercial Radio Services. Section §13.209(c) [under Examination procedures] simply says: "No examination that has been compromised shall be administered to any examinee." That's it. Period. One short sentence. Nothing else. Basically what you have is no conflict of interest rule at all. The policy is essentially the same as used by the FAA who

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utilize qualified instructors from the private sector (paid for by the examinee) to administer exams and certify pilots.

Among others, Commercial Radio licenses are required for certain (Part 87) Aviation and (Part 80) Maritime Mobile Service operation, servicing and maintenance. And since Commercial radio involves "...safety of life" situations and is not a hobby service, you would think the Amateur Service regulations would be more demanding than those of Commercial Radio. Actually, the opposite is the case. Remember that both of these license examination programs are now handled EXACTLY the same (i.e. published question pool from which a small percentage of the questions are selected for examination.)

The Commercial Radio testing program is administered by a COLEM (Commercial Operator License Examination Manager) - the commercial counterpart of the VEC. COLEM's and their examiners are permitted to sell study material and to charge a tuition to prepare applicants to pass the FCC license test. At least one COLEM's primary interest (and I believe there are others) is teaching Commercial Radio courses and then administering the license examinations at big bucks. Is this inappropriate?

Apparently not - especially in the business world where "conflict of interest" is a way of life! Is the primary consideration of your insurance salesman to sell you needed protection or to earn a sales commission? Or for that matter, is any business more concerned about customers or profits? I believe they are concerned about both. And in the academic world you can get a Ph.D degree through the interaction of students and professors who distribute textbooks and other training material ...and also give exams. Does this tarnish the degree? Why is the amateur service different from commercial radio? Is what the FCC saying is that professionals can be trusted - amateurs can't? I just don't know and it puzzles me.

## COMMERCIAL RADIO TRAINING VIA SATELLITE

Elkins Institute here in Dallas, Texas, is an FCC-approved COLEM. Not only are they approved to administer Commercial Radio Operator exams, but they train applicants also. Their General Radiotelephone Operator License (GROL) prep course sells for \$650.00 and is satellite delivered to at least fifty sites coast-to-coast over the EDS (Electronic Data Systems) IDL (Interactive Distance Learning) Satellite Network. More sites can be added for firms that have a specific need.

EDS (an 8 billion dollar company with 70,000 employees) was founded by Dallasite H. Ross Perot (who used to peddle IBM computers) and later sold to

General Motors for many mega-bucks. The Elkins venture is actually a joint effort between schools. They have joined with two other national training institutions - one maritime and one aviation. Advantages of IDL include reduced travel costs while allowing the best instructor to reach more people quicker. "Certification" can even be accomplished immediately by remote printer.

This learning method, by the way, is VERY high-tech and totally revolutionary! A studio in Dallas serves as the "home class room." The "remote classroom" includes from fifteen (in Minneapolis, MN) to fifty (Herndon, VA) video monitors and incorporates "VRS" technology, for *Video Response System*. VRS receives the student responses, processes the data, and displays feedback to the instructor and the entire class. Equipment in the remote sites allows students to communicate with the instructor and students at other remote sites, creating a "virtual classroom" - to use Elkin's words. The "site controller" (which can handle up to 64 monitors) manages the interaction between the host system and the remote site response key-pads.

Every "student" has a VRS pad. Pressing the "Call key" is the equivalent of raising your hand. A telephone audio link then joins the home and remote classrooms - the VRS red "wait" light changes to green "speak" - and student and instructor can talk to one another. Pressing the "Flag key" means you are confused ...or do not completely comprehend. The instructor constantly monitors whether he is being understood by more than 1,000 students at a time by observing the percentage of flags! Teachers ask questions and pupils respond via numeric keys. When the instructor is understood, he goes on. The exams are administered at the end of the course by being satellite downloaded to each monitor from Dallas. Those who pass (which is pretty much guaranteed considering they teach the question pool) are awarded a PPC (*Proof-of-Passing Certificate*) which the applicant trades into the FCC at Gettysburg for their GROL. Examinees then can repair avionics on commercial aircraft and maritime radios aboard ships - and all sorts of supposedly important stuff.

Make no mistake about it. The Elkins/EDS set-up is a real slick operation. But will it draw a thousand students? The \$650 covers Element 1 Radio law (170 questions) on Dec. 4, 1993, and between Dec. 9 and 12 - Element 3, Radio fundamentals and techniques (726 questions). All fifty locations are close to airports. Student capacity is actually in excess of 1,460 students. It certainly will be interesting to see how this first GROL training/testing session goes, and we intend to report back to you on the results. Stay tuned.

## EPA CRITICIZES FCC RF SAFETY PROPOSAL

The U.S. Environmental Protection Agency is not happy with the FCC's proposal to adopt new guidelines for radiofrequency (RF) exposure. The guidelines would be based on new standards from the *Institute of Electrical and Electronics Engineers* (IEEE) and the *American National Standards Institute* (ANSI). Your October 1, 1993 issue covered the new RF exposure standards in detail.

In comments filed with the FCC, Margo Oge, Director of the EPA Office of Radiation and Indoor Air, said there are "serious flaws" in the new standard and that it contains unsupported claims. EPA is concerned whether the proposed use of the standard is "...sufficiently protective of public health and safety."

EPA recommended that radio amateurs be considered to be members of the public, and thus apparently subject to more stringent RF exposure limits than persons who are exposed to RF as part of their jobs.

### Heating or non-heating effects

- The human RF exposure standard - which is claimed to protect humans from harm by any RF-induced mechanism - was based on animal "work stoppage" experiments. Such experiments involve RF heating of hungry animals to the point that they stop performing a learned task for a food reward.

The EPA pointed out, however, that "...the standard is based on a thermal effect of RF radiation and, by extension, is protective of effects arising from a thermal mechanism but not from all possible mechanisms. Therefore, the generalization that 1992 ANSI/IEEE guidelines protect human beings from harm by any mechanism is not justified."

Most studies on adverse effects are based on acute exposures (measured in minutes or a few hours) that elevate animal body temperatures. Only a few studies of long-term, low-level (non-thermal) effects on animals and humans have been reported. Most of these studies indicate no significant health effects from such low-level exposure, but some suggest cancer effects.

EPA preferred RF exposure recommendations from a different source: the National Council on Radiation Protection and Measurements, which recognized that RF biological response may come from heating, non-heating effects, or a combination of the two.

- The ANSI/IEEE standard categorizes RF exposure environments as "controlled" or "uncontrolled." In a controlled environment, the person exposed to RF is aware that he or she is being exposed (and might

be able to do something about it, such as use the RF device no more than necessary or not work in that particular physical area). The uncontrolled environment is more public, in which people may be exposed to RF who are unaware of it.

The categories are based on the nature of the exposure environment and not on the population type. However, the standard is based on heating and some portions of the population are more susceptible to heat than others. These include the elderly, infants, pregnant women, people who are obese, have hypertension, or take medications that decrease heat tolerance. EPA apparently believes that if the categories "workers" and the "public" were used instead of controlled and uncontrolled, then susceptible persons would end up with greater protection.

### Residential RF should be restricted

- EPA argued that the concept of "controlled environment" is too vague to protect people from RF. "The concept will be difficult to apply because people seldom agree on discretionary areas of exposure," the agency said. "The standard could be applied arbitrarily and inconsistently since ANSI/IEEE does not impose conditions to describe or create the state of awareness. An individual's degree of awareness could vary from complete understanding of RF sources to only a vague awareness that RF radiation exists in his controlled environment. ...In our view, 'awareness' is not equivalent to protection."

EPA recommended that the FCC apply the guidelines conservatively "...where there is any question of possible exposure of the general public (which might also include nontechnical employees) to RF radiation, and to apply the more restrictive exposure limits to any transmitters and facilities that are located in residential areas or locations where the RF source may be accessible to the public."

### Sounds in the head

- EPA is concerned that effects of modulated RF should be distinguished from effects of CW (nonmodulated) RF. For example, pulse-modulated RF can produce an effect wherein people hear sounds, probably caused by "...very rapid thermoelastic expansion of the brain, creating a sound wave in the head."

Although other radio safety guidelines recommend that conditions that produce this auditory effect be avoided, the ANSI/IEEE standard states that the effect is not deleterious and it recommends a limit for pulsed radiation that is "well above the threshold for the auditory effect," the EPA said.